

E1
cancel
2nd

effecting a minimally dispersive separation of the analytical sample with the chromatographic column to yield a high molecular weight fraction;

determining a polymer concentration in the high molecular weight fraction using the concentration detector;

determining off-line the molar mass using the molar mass detector on a diverted high molecular weight fraction; and

deriving an average molecular weight from the polymer concentration and the molar mass;

wherein the total analysis time is not greater than about 5 minutes per sample.

E2

28. A method for the determination of polymer molecular weight, comprising:

providing a sample array comprising a plurality of spatially differentiated sites, each site comprising a polymer resin reaction product of a dipehnyl carbonate and bisphenol A;

preparing an analytical sample for each spatially differentiated site by dissolving the polymer resin reaction product in a suitable solvent;

injecting a known amount of each analytical sample into a flow analysis system comprising sequentially a chromatographic column, a concentration detector, and a waste reservoir, and a molar mass detector off-line from the sequential chromatographic column, concentration detector and waste reservoir;

2nd

effecting a minimally dispersive separation of each analytical sample with the chromatographic column to yield a high molecular weight fraction comprising polycarbonate oligomers and polymers comprising at least two bisphenol A units, said fraction being substantially free of monomers;

~~determining a polymer concentration in the high molecular weight fraction of each analytical sample using the concentration detector;~~

~~diverting a portion of each analytical sample to the molar mass detector and disposing the remainder of each analytical sample to the waste reservoir; and~~

~~determining the molar mass in the high molecular weight fraction of the diverted portion of each analytical sample using the molar mass detector; and~~

~~deriving an average molecular weight for each analytical sample based on the polymer concentration and the molar mass;~~

~~wherein the total analysis time is not greater than about 5 minutes per sample.~~

31. A system for the determination of polymer average molecular weight, comprising:

a solvent delivery system;

an autoinjector for injecting a known volume of an analytical sample comprising a polymer reaction product of a diphenyl carbonate and a dihydric phenol;

a chromatographic column for effecting a minimally dispersive separation of the analytical sample to yield a high molecular weight fraction substantially free of monomers;

~~an in-line concentration detector for determining a polymer concentration in the high molecular weight fraction; and~~

~~an in-line waste reservoir in sequence with the chromatographic column and in-line concentration detector; and~~

a molar mass detector off-line from the sequence of chromatographic column, concentration detector and waste reservoir, for determining the molar mass in the high molecular weight fraction;

wherein the system's total analysis time is not greater than about 5 minutes per sample.

E3
cont'd
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